January 31, 1997

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Office of the Secretary
Federal Communications Commission
Room 222
1919 M Street, NW
Washington, DC 20554

Re: *Federal-State Joint Board on Universal Service -- Proxy Model Workshops on January 14-15, 1997,* CC Docket No. 96-45, *Response to Public Notice of December 12, 1996* (DA 96-2091)

Dear Mr. Caton:

On behalf of the Pacific Bell, U S WEST and Sprint, we hereby respond to the *Public Notice,* released December 12, 1996, which seeks input on the Proxy Model issues facing the Commission in its *Universal Service* docket. We provide a general description of the Benchmark Cost Proxy Model (BCPM) that Pacific, U S WEST and Sprint sponsored at the January 14-15, 1997 proxy model workshops; provide specific answers to the numerous technical questions raised in the attachment to the notice and explain how the BCPM model conforms to the Joint Board recommendation.

I. INTRODUCTION AND SUMMARY

During the Joint Board proceeding in CC Docket 96-45, Sprint and U S WEST sponsored the Benchmark Cost Model 2, and Pacific Bell sponsored the Cost Proxy Model. Both of these models were excellent models which developed the overall cost of providing basic universal service. Although the two models approached the development of network costs from a totally different perspective, the bottom line results of the models were surprisingly similar. As a result of this similarity, and in an effort to develop a consensus around a final proxy model, the three companies have combined their talents and energy to develop a model which incorporates the best aspects of both models. We call this model the Benchmark Cost Proxy Model (BCPM). (Over time this new model has also been referred to as the "Best of Both" or "Best of Breed," or more simply as "BOB").

Highlights of the BCPM include:

- A new forward-looking capital cost model which allows the user to easily modify all factors relating to cost of capital and economic depreciation.
- Forward-looking investment and expense factors based upon data from a broad industry base reflecting the current cost of procuring, installing and operating state-of-the-art telecommunications equipment.
- Factors that are easily user adjustable.
- Clear and concise documentation of all model equations and algorithms as well as complete documentation of the source of all default input variables.
- Greatly enhanced speed and ease of operation, including the ability to change program inputs either through easy to use drop-down menus or direct access to EXCEL spreadsheets.
- Methods to process multiple investment and expense views across multiple states, providing the user with a great deal of flexibility in performing multiple scenario analysis.

- Computation of forward-looking cost for unbundled network elements (under development).

The BCM2 used as its fundamental unit of study the census block group (CBG), while the CPM used the much smaller "grid cell" which is based on census blocks. Incorporation of the Census Block (CB) data into the dynamic design process of the BCPM is scheduled for a future phase release. The data submitted with this filing are thus computed at the CBG level.

In light of the requirement that the FCC reach a decision on Universal Service issues by May 8, 1997, the sponsors of the BCPM grant to the FCC and the Joint Board the right to make any changes in the model that they believe are in the public interest and are necessary to carry out their responsibilities under the Telecommunications Act of 1996.

II. ANSWERS TO BUREAU'S QUESTIONS

We hereby respond to the Bureau's questions contained in the attachment to the *Public Notice*.

Model revisions

1) With regard to the model that you have submitted, list and explain the differences between the current model and the version of the model previously filed in CC Docket 96-45. Explain any plans for additional enhancements to the model. Provide a date certain for when the planned enhancements will be provided to the Commission.

Answer 1:
The BCPM is a combination and improvement of the best attributes of both the BCM2 and the CPM. The BCM2 is well recognized for its dynamic building of the network. The CPM is heralded for its fine unit of geography (the "Grid"), its assignment of households to serving wire centers, and its flexible and dynamic reporting interface. The BCPM takes these attributes and adds some new ones, such as expanded engineering inputs and a forward-looking capital cost module. What follows is a list of the attributes included (or to be included) in this new model. We are introducing Phase 1 at this time, Phase 2 will be introduced after the workshops, and will be influenced by the decisions made at the workshops.

Item	Phase 1	Phase 2	Future
Using households as a surrogate for lines, an adjustment to households was made in both the CPM and BCM2 to match line counts. In the BCPM, residence and business customer line counts are introduced and will match at the level of:	State	Company	CLLI
Based on the unit of geography used to collect the data (CBG's, CB's, or Grids), customers are associated with a wire center. In the BCM2 and Hatfield, this association was made based on the closest wire center. In the BCPM, the association will be made to the serving wire center for the centroid of the unit of geography:	CBG	CB	Grid
Currently, the BCM2 and Hatfield use the CBG as the unit of data. The CPM is based upon the CB that is partitioned into grids. Phase 1 of BCPM is based on CBG data. Phase 2 will be based upon CB data. To illustrate this development, we have included Connecticut data at the CB level with our Phase 1 results. In the future, BCPM could be run at the Grid level.	CBG	CBG/CB	CB/Grid
The CPM offers a wide variety of reporting levels (County, CLLI, Density Zone, Terrain Type, Census Block Group.) This type of reporting capability has been added and improved in the BCPM	Complete		
In addition, the CPM offered detail reports listing all the facilities used in an area. This capability is incorporated into the new BCPM	Complete		
All of the models currently use some type of employee count to estimate the number of business lines. The investigation of a better data source is still under way. In the meantime, the adjustment of the business data to match single line counts will be improved in phase 1 to match at the state level.	State	Company	CLLI
Density classifications are used to adjust the cost factors for outside plant placement. The CPM's density classifications (e.g., <10hh/mi^2, 11-50, 51-150, 151-500,501-2000, 2001-5000, >5000) will be used in the BCPM. This is done since they are more evenly distributed (on a log scale) and more closely match engineering break points.	Complete		
The BCPM will expand the development of the structure (i.e., poles, conduit, trench) investment within the model. In the BCM2 and CPM, many of these calculations were performed outside of the model. Now, the BCPM has included these calculations as user controlled inputs.	Complete		
This is done through expanded input tables and the recognition of pole and conduit facilities as separately placed plant (not a factor of cable).	Complete		

Item	Phase 1	Phase 2	Future
The CPM recognized that there were major differences in the cost of placing and maintaining underground and buried, and therefore separated the two. The BCPM also recognizes this fact. In addition, the BCPM has been modified to allow the user to input plant mixes by density zone. This recognizes that plant placement is dependent on the area's specific parameters.	Complete		
The cost of installing plant is a function of both the cable size being used and the method of placement. The BCPM data inputs separately compute cable material and installation costs	Complete		
The BCPM includes a powerful yet simple model that allows the user to vary the basic inputs to arrive at the forward-looking depreciation, cost of capital, and tax rates. This new module incorporates all of the methodologies that are currently in practice today, including: deferred taxes, mid-year, beginning year, and end year placing conventions, Gompertz-Makeham Survival curves, future net salvage, equal life group methods, and many other items. The module also incorporates separate cost of debt and equity rates, along with the debt to equity ratio.	Complete		
The BCPM expands the number of accounts with annual charge factors. For example, conduit has been broken out from the cable accounts. There is a separate annual charge factor for each of the USOAR Main Accounts. It is important to note that the annual charge factor does not include operating expenses. The BCPM separately estimates the operating expenses on a per line basis.	Complete		
The BCPM input tables and model logic have been improved to accommodate separate cost inputs for small, medium, and large LECs. However, the data to populate these tables is currently not available.	Complete	Data by company size	
What impaired all of the models was that the inputs did not necessarily represent what the average LEC actually incurred to buy and place state-of-the-art plant. The BCPM team undertook an extensive data sampling of the LECs forward looking costs of installing and maintaining plant and providing and maintaining service to basic residential and business customers. The results of these studies have been incorporated into the BCPM input tables.	Complete		
Using the dynamic modeling of the BCM2, changes were made to incorporate structure improvements, underground/buried separation, data table improvements, and feeder/distribution recognition	Complete		

Item	Phase 1	Phase 2	Future
The BCPM is user-friendly allowing easy access to all data items and an easy to use report generation interface	Complete		
BCM2 and BCPM did not provide for the sharing of structure costs. BCPM allows for the sharing of various structures (i.e., trench, conduit, poles). Sharing percentages may differ by density zone and all sharing percentages are user adjustable.	Complete		
The BCPM has been written in a combination of Excel (for user access to algorithms/calculations) and Visual Basic. This has improved the speed for processing and expanded the ability to perform scenario analysis.	Complete		

2) Using the current version of your model, provide study area results for Southwestern Bell - Texas (SWTX). For this study area please provide:

a. Summary statistics; total investment per line, loop investment per line; end office switching investment per line; monthly cost per line; loop monthly cost per line; end office switching monthly cost per line; monthly transport cost per line; total households; total residential lines; total single business lines; total business lines; total switched lines; the number of residential lines per density zone, and monthly cost per line per density zone.

Answer to Question 2a:
SEE ATTACHMENT 1

b. Model results reported on an ARMIS basis; all expenses and plant in service rows that are contained in ARMIS report 43-03. If any of the rows can not be shown separately, provide a list of rows that have been combined and the algorithm used to combine the rows.

Answer to Question 2b:
SEE ATTACHMENT 2

c. Switching: the total number of switches; and the lines per each switch. Please explain how the cost of the switches was determined, provide all cost input data, and explain how the model determines whether a switch will be a host, remote, or stand alone.

Answer to Question 2c:
The number of switches and lines per switch are listed in Attachment 3. The cost of each switch was taken from the switch curve developed by the BCPM team. This switch curve was based upon the industry data that was collected from various LECs. The development of the switch curve is outlined in ATTACHMENT 4.

In regard to the type of switch (host, remote, or stand alone), the BCPM does not make a distinction. Rather, the model employs a curve that is sensitive to the number of lines as the main determinant of switch costs. There are multiple reasons for this. First, the driving factor of switch costs was statistically proven to be line size of the switch. Second, based upon the data that was collected from the LECs, no statistical difference was found between the Host and Remote switch curves. Third, in the collection of the data, it was requested that the cost of the remote should reflect the costs incurred at the host for the remote. Finally, the previous models used the Local Exchange Routing Guide (LERG) as the basis for the decision as to whether the switch should be a host or remote. The LERG information is not necessarily the correct economic basis to use in a forward looking environment.

d. Cable and wire statistics: percent underground, buried and aerial; the length, gauge and size of copper cable used; length and size of fiber cable used; fill factors used as inputs; percent distribution fill determined by the number of lines served divided by the total number of distribution lines installed; percent feeder fill determined by the number of lines served divided by the total number of feeder lines installed (when the feeder is fiber, explain what assumptions were used to determine the capacity and use of the fiber); the distribution of households by loop length; and any factors that alter the cost of cable or the installation of cable such as additional costs associated with placing cable in dense urban areas.

Answer to Question 2d:
SEE ATTACHMENT 2 for the percentage of underground, buried and aerial.
SEE ATTACHMENT 7 for the distribution of households by loop length.
SEE ATTACHMENT 5 for the other requested information.

e. Digital carrier: the number of lines served by carrier, the investment in carrier and investment in carrier as a percent of circuit investment.

Answer to Question 2e:
Carrier Lines: 7,018,206 Carrier Investment: 2,007,471,000 Carrier % of Circuit: 96.7%

f. Depreciation: the model depreciation rate and expected life by type of plant.

Answer to Question 2f:
SEE ATTACHMENT 6

g. Expenses: direct network expenses; indirect expenses; and common and overhead expenses. Please explain how the model allocates expenses among these various expense categories.

Answer to Question 2g:
ATTACHMENT 10 lists the Class B USOAR expenses used as default values in the BCPM model. Each of the direct expenses included in the default values are assigned to residential service based on forward-looking studies determining the operational expenses associated with providing residential service. The BCPM model does not allocate any expenses. It only includes those expenses "assigned" to basic service.

h. Capital costs: return on capital; and taxes. Please explain how the percentage return on capital was calculated; and how tax gross-ups were determined.

Answer to Question 2h:
The return on capital and taxes used in the model are contained in ATTACHMENT 6. The development of the return on capital was based upon the weighted average of LEC responses to an

industry data request. This data request asked for each LECs forward looking return on debt and equity along with its debt ratio. These values were then input into the BCPM Capital Cost Module.

The Capital Cost Module combines on a weighted average basis, the return on debt and return on equity based upon the debt ratio to arrive at a rate of return. This rate of return is then applied to the amount of undepreciated capital remaining in each year for each plant account. A net present value of these return values is generated. Finally, the value is levelized to arrive at the average return on capital for each account.

The taxes were calculated in a similar manner. However, the tax rates were first grossed up before any of the year-by-year calculations were made.

i. Support: the aggregate support at $20, $30 and $40 benchmark levels and the number of households by cost category, where cost categories are ranges of cost per month such as greater than or equal to $5 and less than $10.

Answer to Question 2 i:
SEE ATTACHMENT 1 for benchmark level results.
SEE ATTACHMENT 7 for cost categories.

Documentation and verification

3) Explain how the model complies with the criteria for evaluating proxy models set forth in paragraph 277 of the Joint Board's Recommended Decision.

Answer to Question 3:
Some of the sponsors do not necessarily agree with each of the Joint Board's criteria. The Sponsor's opening and reply comments in response to the Joint Board Recommended Decision explain their concerns, to the extent they exist. Nothing herein should be construed to indicate the Sponsor's concurrence with these criteria. Following are the eight criteria provided by the Joint Board along with a discussion of how the BCPM meets each criterion.

Criteria 1: Models should use the least-cost, most efficient technology.

- The BCPM uses forward looking technology including fiber driven, integrated loop carrier systems, and digital switching at current network switch nodes.
- The input data for BCPM reflects a broad sampling of the costs LECs are currently experiencing in the purchase and installation of state-of-the-art technology.
- All variables are easily modified by the user.
- In addition, the BCPM uses forward looking technologies such as digital switch, DCL/AF pair gains, and connected to fiber.

Criteria 2: Any network function or element must have an associated cost.

- The BCPM provides and documents the cost of each network function. The algorithms which assure that sufficient plant and equipment are provided are clearly documented and verifiable.
- The BCPM, in addition to documenting the overall cost of providing basic universal service, will be capable of providing the unit costs of specific network elements. This capability,

combined with an accurate and verifiable data base of material costs, installation costs, and network design assumptions, will allow for a more accurate view of the cost of these unit network elements.

Criteria 3: Only forward looking, not embedded, costs should be used.

- All costs used in BCPM are based on industry-wide surveys of forward looking costs of deploying and operating cost effective, state-of-the-art technology.

Criteria 4: The model should use forward-looking cost of capital and economic depreciation expense.

- In the BCPM model the development of both the return on and recovery of capital is based on the weighted average of LEC responses to an industry data request. This data request asked for each LECs forward looking return on debt and equity, debt ratio, cost of removal, salvage, and depreciation lives for each plant account plus the current taxes. These values are then used in the BCPM's Capital Cost Module to determine the forward looking return and recovery of capital for each account.
- The default values for cost of capital and economic depreciation expense in the BCPM are based on forward-looking economic considerations.

Criteria 5: The model should include the cost of providing business services.

- The BCPM includes residential and business access lines and makes adjustments for public and special access so that the network design incorporates the efficiencies that a provider of all basic access services in a given geographic area enjoys.

Criteria 6: A reasonable allocation of Joint and Common costs should be assigned.

- BCPM provides an industry-wide composite of forward-looking operational and overhead expenses, by account, that are specifically associated with the provision of basic local exchange service. These are all easily adjusted by the user.

Criteria 7: The model and all underlying data, formulae, computations and software should be available for inspection.

- BCPM is completely documented, user friendly, and easily verifiable. All model equations and logic are clearly stated and described. Underlying data is specifically documented and validated by actual experience in installing state-of-the-art networks and technology.

Criteria 8: The model should include the capability to examine and modify the critical assumptions and engineering principles.

- BCPM allows the user to access and model all variables in the program either though easy to use drop down menus or through direct access to the EXCEL spreadsheets.
- BCPM provides an integrated module to develop structure costs for aerial, buried and underground installations by density group and terrain difficulty. This allows the user to individually vary the cost of installation activities (e.g., plowing, trenching, conduit, etc.) as well as the percentage of construction activity by density zone. Additionally, the user can vary the percentage of an activity which can be shared among utilities, such as the placing of poles.
- BCPM provides methods to process multiple investment and expense views across multiple states. This provides the user with a great deal of flexibility in performing multiple scenario analysis.
- BCPM uses a simple yet powerful module to develop capital costs. The user is able to specify values for costs of debt and equity, debt/equity ratios, as well as depreciation and tax rates.

The model uses the financial methodologies that an efficient new entrant would use such as deferred taxes, mid-year, beginning year and end year placing conventions, Gompertz-Makeham survivor curves, future net salvage, and equal life group methods.

- BCPM develops separate depreciation rates and annual charge factors for each of the USOAR Main Accounts.

4) In its Recommended Decision, the Joint Board recommended that universal service support be provided for single line businesses in high cost areas. How do the models calculate costs for single line businesses?

Answer to Question 4:
The BCPM quantifies the number of single line business lines by CBG. The investment per line in each CBG is the average loop, switch, and IOF investment for all residence and business lines in the CBG. Each line has the same cost of capital. Operational expenses in the BCPM model are currently assumed to be the same for residence and single line businesses.

5) List all equations used in the model. For each variable used in an equation, provide the definition of the variable, the default value of the variable, identify the source of the value, and state whether the user can change the value of the variable.

Answer to Question 5:
SEE ATTACHMENT 8

6) What sources are available to verify that a network derived by a model is capable of delivering telecommunications services consistent with the standard of service adopted in the Joint Board's Recommended Decision?

Answer to Question 6:
There are numerous engineering consulting and contracting firms that can verify a network derived from a model. The publication *Telephony* lists most of these companies. Currently, USTA has engaged an engineering consultant to review and critique the engineering assumptions and investment inputs that are used in the BCPM.

7) Your model assumes that vendors typically offer a discount off their list prices for switches and digital loop carrier equipment. Purchasers, however, may be prohibited from disclosing the size of such discounts. Given the inability to provide such information, what alternatives are available to acquire such information?

Answer to Question 7:
The BCPM uses actual data from current LEC purchases of central office plant and outside plant, cable and equipment. These prices reflect the discount provided from the vendor's "list" price and therefore no discount percentage needs to be applied within the BCPM for this data.

The model sponsors have attempted, unsuccessfully, to have equipment vendors provide data on list prices and the typical discount levels for various size LECs. If regulators desire this type of approach, they will likely need to become involved in the process of encouraging equipment vendors to provide such information.

Outside plant

8) Describe the specific manner in which network design parameters (cable gauge, capacitance, loading, resistance, attenuation, cable fill, and concentrator or repeater placement) are used in the development of the models.

Answer to Question 8:
SEE ATTACHMENT 9

9) What service capability will local loops have if built to the specifications used in the model? Will all local loops provide (1) full time (non-traffic sensitive and non-party line) service between the customer and the serving wire center and/or (2) digital subscriber line (DSL) capability as described in "BOC Notes on the LEC Networks -- 1994"? Will all local loops be capable of providing (1) basic rate ISDN service (2B+D) and/or (2) full duplex service at the DS1 level (commonly called T1) of 1.544 Mbps?

Answer to Question 9:
Because the BCPM is a dynamic model and has been designed to allow for all networks, it has the capability to provide all of the services in Question 9 *if the correct inputs are used by the user.* For example, a break point from copper to fiber digital loop carrier must be set by the user to allow for transmission requirements and specifications of differing services. In order to provide a network that will economically be pre-provisioned for DS1 and below (ISDN, POTS, etc.), a minimum break point of 9000 feet of feeder should be considered. In other words, fiber digital loop carrier should be deployed on all loops where the feeder length is longer than 9000 feet. In addition, distribution lengths beyond a remote terminal should not exceed 9000 feet. To exceed these break points would increase costs dramatically due to coarser gauge copper cables, special repeaters, increased switch costs and the like.

10) The Hatfield and BCM2 models differ with regard to the sharing of structure investments, the mix of aerial, underground and buried cable, and the relationship between the cost of installation and the terrain. For example, the Hatfield model shares structure among three utilities, while the BCM2 model assigns 100% of the cost of structures to the telephone company. The Hatfield model assumes that cable will be extended by 20% when encountering difficult terrain rather than using terrain specific cost characteristics, while the BCM2 uses terrain specific cost characteristics. The BCM2, however, aggregates the terrain specific costs by activities, such as trenching in hard rock or restoring asphalt. Please provide documentation that supports the assumptions used in the models. Alternatively, please provide documentation that refutes these assumptions.

Answer to Question 10:
SEE ATTACHMENT 9

Switching

11) The models, at least in part, reply on Bellcore's Local Exchange Routing Guide, which may not include all wire centers. Do the models reflect all wire center locations? Should the models reflect all wire center locations? Do the models include host-remote configurations when it is efficient to do so?

Answer to Question 11:
To correctly assign customers to their serving wire center, the BCPM relies on the Ontarget Exchange Info data product to reflect wire center locations. This data base is similar to the LERG, but it also includes the wire center boundaries. Exchange Info Plus only lists those offices that are listed in the LERG and includes only the ILEC's landline end office switch locations. For any switches that are not listed, we know of no other commercial source for such switch locations and boundaries. Therefore, the BCPM uses this Ontarget Exchange Info data.

With regard to host-remote configurations, the BCPM model uses the switch curve that is outlined in ATTACHMENT 4. As stated in response 2c, the BCPM does not make a distinction between host and remote placement. Rather the curve represents the average costs of a switch installed with the given line size.

Demand for lines

12) Do the models accurately estimate the total demand for lines in a particular geographic area, such as a Census block group, wire center, or service area? What types of lines (e.g., residential, single-line business, multiline business, and special access) are, or should be, included in a model's estimated demand for lines? Can the model estimate the incremental cost of adding households to the network?

Answer to Question 12:
The BCPM estimates total access lines for each CBG according to the following methodology:

1) Data inputs are:
   - 1995 residential and business access line counts for the state
   - 1995 household counts for each CBG
   - Number of employees by CBG
2) The access lines in each CBG are estimated in the following manner:
   - Residential access lines are estimated by allocating actual residential access lines in a state to each CBG based on households in the CBG.
   - Business access lines are estimated by allocating actual business access lines in a state to each CBG based on the number of employees in the CBG.

As a result, the sum of the residential and business access lines for every CBG in a state matches the actual reported access lines at the state level. As described in the answer to Question 1, the BCPM will be enhanced to match access lines at the company level (e.g. the sum of the access lines for each CBG served by a company will match that company's total access line count).

Ultimately, the most accurate method to populate access lines by CBG is to have each company conduct a study to determine its actual access lines for both business and residential customers in each of the CBGs it serves.

The estimated access lines in the BCPM includes all access lines (business, residential., and special access). The inclusion of all lines ensures that the model results reflect the deficiencies or economies of scale to serve the entire market.

The BCPM is not an incremental cost model in the sense of estimating the cost of adding to an existing market. Rather, it is designed to estimate the total cost of serving the entire market, at current levels of demand (e.g. total access lines). The cost per access line output of the BCPM is the average cost per access line in each CBG.

The BCPM can be run at various demand levels. The cost differences between model runs at different demand levels would measure changes in average costs, not incremental costs.

Furthermore, dividing the change in total cost by the change in access lines does not represent an economically meaningful measure of the incremental costs of the additional lines. Since the model is run based on total demand, there is no rational basis to assume that the unit cost of any access line in a CBG is lower or higher than the unit cost of any other access line in that CBG. For example, the model might show that a CBG with 100 access lines has an average cost of $30 per month per access line, and doubling the number of access lines reduces the average cost to $20 per month per access line. In this example, the total cost for that CBG increased from $3000 to $4000. To interpret this result to mean that the "incremental cost" of the additional access lines is $10 (the $1000 total cost increase divided by the 100 additional access lines) has little rationale. One could just as well conclude that the reduction in average cost should be assigned to the original 100 access lines. In general, "incremental" analysis of this type is inherently arbitrary, since it is predicated on the assumption that one class of customers (new, business, or residential) should bear a proportionately smaller share of the fixed costs of the network than other customers.

In addition, characterizing the change in total cost divided by the change in total demand as an incremental cost raises other issues. For example, if demand in an urban area increased, but the number of access lines in a rural area served by the same switch and feeder route remained constant, the effect of the increased demand in the urban area may result in a lower average cost in the rural area. It is impossible to make sense of such CBG specific results (a change in cost with no change in demand) in an incremental framework.

To summarize, the BCPM is a total cost model, and it makes no attempt (and was not designed) to attribute the change in costs to a change in demand in a specific area. In the context of the above example, identifying the change in total costs associated with an increase in demand in one or several CBGs would require entirely different logic in the model.

Expenses

13) All the models appear to base repair and maintenance and retail costs on historical costs. In some cases this is done based on a historical relationship between investment and expenses as reported in ARMIS; in other cases they are based on per line amounts. For these categories of expense, to what extent are these historical expenses a reasonable approximation of forward looking expenses? How are gains in productivity due to technological advances and increased competitive pressure captured by the model's estimates of repair and maintenance and retail costs?

Answer to Question 13:
Based on statistical analyses that demonstrate that most expenses are highly and positively correlated with lines, the BCPM developed its operating expenses on a per line basis. These per line estimates are not based on ARMIS values. Rather, these expense values were derived by taking a weighted average of the LEC estimates of forward-looking expenses per line for each Class A expense account (6xxx series). The expenses were defined as the total forward-looking loop costs for single line

residence and business, and include touch-tone, a white page listing, and access to operator and emergency services.

In regard to the repair, maintenance, and retail costs (as with the other accounts), the per line estimates are forward looking. The estimates from the various LECs included adjustments for productivity gains, exclusion accounts such as analog switching, and forward looking adjustments. Almost all estimates started with 1995 actuals (a few companies averaged multiple years) as the basis for the values. These current year expenses are the best known values of the LEC cost to maintain the current efficient telephone network. When 1996 data is available, the BCPM can easily incorporate it into the model.

14) Do the retail costs -- the costs of bill production, billing inquiries, and advertising - developed for your model reflect the costs associated with the services included in the revenue benchmark included in the Recommended Decision? What share of your retail costs are associated with bill production and billing inquiries? How are retail costs developed to capture the costs of services included in the revenue benchmark while excluding retail costs associated with services not included in the benchmark, such as intraLATA toll.

Answer to Question 14:
The expense levels reflected in the BCPM are defined as the total forward-looking expenses associated with basic residential service, including touch-tone, a white page listing, and access to operator and emergency services. No costs associated with intraLATA toll vertical services or enhanced services were included by those companies providing data for the model.

Based on a roll-up of ARMIS 43-04 data, the distribution of customer service expenses (excluding marketing) incurred during 1995 follows:

1995 ARMIS 43-04 Detail

Other Customer Service Expenses	(000)		per line / month	BCPM expense / line / month
Operator Services	2,079,867	23.20%	$1.07	
Published Directories	518,741	5.79%	$0.27	
End User Service	4,139,287	46.17%	$2.13	
IXC Service	383,014	4.27%	$0.20	
Message Processing	78,022	.87%	$0.04	
End User Billing	943,846	10.53%	$0.49	
IXC Billing	44,107	.49%	$0.02	
Other	777,958	8.68%	$0.40	
Total	8,964,842	100.00%	$4.62	$2.422

Both End User Service and IXC Service categories include: service order processing, payment and collection, and billing inquiry.

15) How is depreciation expense treated in the current version of the model? In particular, describe in detail the set of plant categories considered and the asset lives or economic depreciation rates associated with each. Justify, if possible, the default choices made in the model. Describe the extent to which the model has sufficient built-in flexibility to accurately reflect differing decisions by the FCC and state commissions regarding depreciation rates? Are there enough distinct categories of plant to accurately

model forward looking depreciation expense? For example, should asset lives for conduit necessarily be the same as cable lives?

Answer to Question 15:
The plant categories, their lives, and their depreciation rates are contained in ATTACHMENT 10. The BCPM allows annual charge factor inputs for all major plant accounts (e.g., conduit has its own values). This improvement was made to recognize that all of the major accounts have differing lives, salvage, cost of removal, tax lives, and survival curves, which ultimately lead to distinct capital costs factors for each account.

Estimates of lives are used as inputs to the BCPM's Capital Cost module to develop the depreciation rates. The lives, salvage, and cost of removal are based upon the LEC industry data survey requesting forward looking lives.

The development of the annual charge factors is as important as the proper building of the plant. The BCPM includes a powerful yet simple model that allows the user to vary the basic inputs to arrive at the depreciation, cost of capital, and tax rates for each account. This new module incorporates all of the methodologies that are currently in practice today, including: deferred taxes, mid-year, beginning year, and end year placing conventions, Gompertz-Makeham Survival curves, future net salvage, equal life group methods. The module also incorporates separate cost of debt and equity rates, along with the debt to equity ratio. And as stated, all of these inputs are user controlled.

16) The BCM2 includes 75% of $133.39 per year or $8.34 per month per line to reflect non-plant-related expenses such as marketing and customer operations. The adjustable 10% overhead figure in the Hatfield model is the only similar component. Should costs for customer or corporate operations be a fixed amount per line? If not, what should be the basis for allocating these costs? To what extent should basic local service be charged with marketing or customer operations expenses?

Answer to Question 16:
Benchmarking within the telecommunications industry has historically used a per access line basis to measure the productivity of the expenses involved in marketing, customer services, and corporate operations. Rather than introduce an unfamiliar methodology, the per access line basis was continued for the BCPM as a number of variable inputs at the Part 32, Class B level. This method helps the user avoid confusion when calculating the expenses associated with corporate operations. While the BCPM model yields a precise expense level recognized by the user, the Hatfield Model yields a result that is not readily quantified for the user. The base to which its percent overhead is applied is not defined, nor is the total corporate operations expense reported in the model.
We believe that local competition will cause an increase in marketing expenses incurred to educate and retain our customer base. It will continue to be necessary to provide customer services, whether the customer is an end user customer or another carrier. We do not expect the levels of customer service expenses to change significantly from what is incurred in today's environment.

Use of proxy models for multiple objectives

17) Can a single proxy model be used to estimate the cost of the local exchange network for universal service support and for other objectives such as the pricing of network elements or access reform?

Does a network specifically dedicated to universal service objectives differ in a significant way from the summation of network elements envisioned in Section 251? Are there insurmountable problems in the treatment of common costs in the different uses of the model? Describe specifically the modifications, if any, that would be required if a single model is used for multiple objectives.

Answer to Question 17:
Although the development of costs for unbundled network elements (UNEs) and the development of costs for Universal Service Funding (USF) purposes should be grounded in the same costing methodology, there are several significant differences between the two costing studies.

1. Retail Versus Wholesale Costs
USF costs include retail level costs--i.e., the costs of marketing , business office, billing and collection. UNEs, on the other hand, are a wholesale offering, and do not include any retail level costs. Rather, UNE's cause additional expenses to be incurred on the wholesale side.

2. Element or Component Versus Service Level Costing
USF costs are service level costs. A proxy model for USF purposes focuses on developing the costs of providing a specific service (e.g. voice grade POTS) for an average customer in a particular geographic area.

UNEs, on the other hand, are discrete network components. Not all of the costs of UNEs are included in a USF model, which is based on an integrated network. For example, the cost of an unbundled loop includes not only the outside plant (feeder and distribution) costs included in a USF model, but also the additional costs of provisioning a loop not interconnected with the ILEC switch. These additional costs include the termination equipment necessary to interconnect the loop with the CLEC facilities (or, if the CLEC provides the termination equipment, the costs of physical collocation at the ILEC wire center or other point of interconnection).

Moreover, UNE costing must be considerably more granular than USF costing. Switching is a good example of this difference. In a USF model, it is reasonable to use the average usage in developing switching costs, and hence total service costs. Cost based UNEs, on the other hand, have to reflect customer specific costs. This would necessitate a usage based element (ideally, based on peak usage) in the local switching UNE. Similarly, separate pricing would be required for other components such as switch features and trunk ports. Thus, a proxy model developed for UNE purposes must incorporate much more granular cost functions than is required for USF purposes.
Finally, the USF cost model incorporates an allocated portion of common and overhead costs to universal service. The development of UNE costs requires the allocation of those aggregate common and overhead costs to individual network elements.

3. Company level versus nationwide average costs
A USF proxy model is intended to estimate the costs that would be incurred by any efficient company in providing service to a particular geographic area. It is not meant to replicate the costs of a specific company. It is used to define a total level of compensation that is reasonable for any company, CLEC or ILEC, providing the service. LECs also receive compensation from their basic service rates and other rate rebalancing. In this context, use of nationwide average input factors is as reasonable an approximation as can be made for the purpose of defining costs for USF subsidy payments.

UNEs, by contrast, represent the total compensation which an ILEC will receive for providing piece parts of its network. An ILEC, in fulfilling its obligations to provide UNEs, typically seeks to base its UNE prices on its own, and not nationwide average, input costs. To not use company specific costs would lead to competitive inequities (e.g. UNE prices either too high or too low relative to the specific ILEC's costs). Therefore, UNE cost development for a particular company can vary significantly from the costs implied in a USF model based on nationwide average inputs. Differences can arise from many sources: equipment discounts, fill factors; switching vendor differences, actual usage levels, etc.

For all of the foregoing reasons, the costs of network components identified in a USF service level model cannot be equated with the costs (and prices) of UNEs. At best, the USF based component costs can be used as the starting point for developing the costs and rate structure for UNEs.

While the two processes are fundamentally different, they can be related if the top-down (USF) and the bottom-up (UNE) studies rely upon the same basic input cost data sets and network design assumptions to produce their results. This is what is done within the Hatfield model. The Hatfield model is composed of at least two distinct and different models operating from the same data and assumption sets. The validity of the outputs of these models - basic service costs and unbundled elements costs - are thus only as good as the validity of the input data and design assumptions. Since the Hatfield model is flawed in a number of areas, all the errors and omissions in the Hatfield model as related to basic service costs, are carried through to their costs for UNEs.

This contrasts sharply to the BCPM sponsors who are in the process of developing an additional module to calculate a nationwide benchmark UNE cost from the same data and network design assumptions used in the development of the benchmark USF costs.

Sincerely,

Pacific Bell

Sprint

U S WEST

Benchmark Cost Proxy Model Results

Area Wide Summary Report

Entity: Texas

Report Type: Company - Single State

Investment Per Line Data	**Uncapped Annual Amount**	**Capped[1] Annual Amount**
Loop Investment	$ 943	$ 940
Switch Investment	$ 229	$ 229
IOF Investment	$ 7	$ 7
Other Investment	$ 83	$ 82
Total Investment	$ 1,261	$ 1,258
Expense Per Month Data		
Capital Cost	$ 19.84	$ 19.79
Operating Expense per Line	$ 11.34	$ 11.34
Total Cost per Line	$ 31.18	$ 31.14
Gross Receipts Tax[2]	$ 1.27	$ 1.26
Line Data		
Average Loop Length in Feet	16,590	
Lines Above $10K Loop Inv	47,432	
Number of Households	4,965,236	
Number of Residential Lines	6,966,228	
Number of Single Business Lines	336,675	
Multiple Business Lines	2,499,679	
Total CBG Lines Served	9,802,582	
Aggregate Support Data		
Support Over $20 Benchmark	$ 1,469,121,677	$ 1,463,818,308
Support Over $30 Benchmark	$ 577,974,606	$ 572,671,237
Support Over $40 Benchmark	$ 301,784,354	$ 296,480,985
Support Over $50 Benchmark	$ 182,302,862	$ 176,999,493
Support Over $60 Benchmark	$ 111,543,252	$ 106,239,883
Support Over $70 Benchmark	$ 73,010,828	$ 67,707,459
Support Over $80 Benchmark	$ 51,104,179	$ 45,800,810

[1] CBGs with Average Loop Investment per line over $10,000 are capped at $10,000

[2] Application varies so much on a state by state basis, it is not included in the Monthly Cost.

Attachment 1

Benchmark Cost Proxy Model Results

Plant Summary Report

Entity: Texas

Report Type: Company - Single State

Investment: Capped[1]

Lines Above $10K Loop Investment = 47,432

Density Group	0 to 10	11 to 50	51 to 150	151 to 500	501 to 2000	2001 to 5000	> 5001	Total
Investment Per Line Data								
Total Capped Loop Investment[2]	$ 6,045	$ 2,895	$ 1,818	$ 1,135	$ 739	$ 653	$ 422	$ 940
Switch Investment	$ 308	$ 254	$ 240	$ 233	$ 227	$ 224	$ 223	$ 229
InterOffice Facilities	$ 9	$ 8	$ 7	$ 7	$ 7	$ 7	$ 7	$ 7
Other Investment	$ 385	$ 769	$ 170	$ 329	$ 216	$ 64	$ 58	$ 83
Total Investment	$ 6,747	$ 3,926	$ 2,235	$ 1,704	$ 1,188	$ 947	$ 710	$ 1,258
Cost Per Month Data								
Capital Cost	$ 102.48	$ 51.51	$ 33.78	$ 23.00	$ 16.58	$ 15.10	$ 11.45	$ 19.79
Operating Expense per Line	$ 11.34	$ 11.34	$ 11.34	$ 11.34	$ 11.34	$ 11.34	$ 11.34	$ 11.34
Total Cost per Line (Excluding Gross Receipts Tax)	$ 113.82	$ 62.86	$ 45.13	$ 34.34	$ 27.92	$ 26.44	$ 22.79	$ 31.14
Line Data								
Loop Distribution Length	5,248	5,619	5,021	3,256	1,706	1,177	922	2,072
Loop Feeder Length	79,922	37,600	22,130	15,294	12,485	11,350	9,685	14,518
Total Loop Length	85,170	43,220	27,151	18,549	14,191	12,526	10,606	16,590
Number of Households	45,500	273,809	301,988	508,158	2,000,981	1,516,569	318,231	4,965,236
Number of Residential Lines	63,837	384,154	423,689	712,946	2,807,377	2,127,747	446,478	6,966,228
Number of Single Business Lines	1,061	9,455	18,661	45,390	133,693	99,028	29,388	336,675
Multiple Business Lines	7,876	70,201	138,547	337,000	992,617	735,242	218,195	2,499,679
Total CBG Lines Served	72,774	463,810	580,897	1,095,336	3,933,687	2,962,017	694,061	9,802,582

Attachment 1

Benchmark Cost Proxy Model Results

Plant Summary Report

Entity: Texas
Report Type: Company - Single State
Investment: Capped[1]

Lines Above $10K Loop Investment = 47,432

Aggregate Support Data	**0 to 10**	**11 to 50**	**51 to 150**	**151 to 500**	**501 to 2000**	**2001 to 5000**	**> 5001**	**Total**
Support Over $20 Benchmark	$ 88,351,231	$ 257,662,007	$ 190,833,702	$ 208,345,428	$ 424,612,472	$ 264,104,311	$ 29,909,157	$ 1,463,818,308
Support Over $30 Benchmark	$ 79,618,410	$ 202,235,302	$ 122,707,260	$ 90,934,806	$ 59,594,554	$ 17,487,873	$ 93,033	$ 572,671,237
Support Over $40 Benchmark	$ 70,885,588	$ 147,652,297	$ 62,570,430	$ 14,786,410	$ 500,747	$ 57,591	$ 27,920	$ 296,480,985
Support Over $50 Benchmark	$ 62,183,116	$ 95,926,571	$ 18,306,804	$ 471,337	$ 66,090	$ 21,358	$ 24,217	$ 176,999,493
Support Over $60 Benchmark	$ 53,525,736	$ 50,545,876	$ 2,026,705	$ 87,547	$ 16,880	$ 16,625	$ 20,514	$ 106,239,883
Support Over $70 Benchmark	$ 44,879,797	$ 22,548,029	$ 220,822	$ 24,199	$ 3,028	$ 14,773	$ 16,811	$ 67,707,459
Support Over $80 Benchmark	$ 36,364,029	$ 9,310,433	$ 99,539	$ 780	$ -	$ 12,921	$ 13,108	$ 45,800,810

Attachment 2

Benchmark Cost Proxy Model Results

Armis Report Format

Report Type: Company - Single State

Investment: Capped[1]

Lines Above $10K Loop Inv:	47,432	Large		Total	
Account Description	**Account Number**	**Capped Investment**	**%**	**Capped Investment**	**%**
Plant In Service					
Land & Support	2110	$808,339,722		$808,339,722	
COE Switch	2210	$2,245,383,327		$2,245,383,327	
COE Circuit	2230	$2,080,699,427		$2,080,699,427	
Poles	2411	$105,150,941		$105,150,941	
Aerial Cable	2421	$151,950,951	2.83%	$151,950,951	2.83%
Underground Cable	2422	$1,819,710,423	33.86%	$1,819,710,423	33.86%
Buried Cable	2423	$3,402,317,469	63.31%	$3,402,317,469	63.31%
Conduit	2441	$1,724,531,696		$1,724,531,696	
Total Plant in Service		$12,338,083,956		$12,338,083,956	
Plant Specific Expenses		**Amount**	**%**	**Amount**	**%**
Network Support	6110	$17,527,017	0.78%	$17,527,017	0.78%
General Support	6120	$141,157,181	6.30%	$141,157,181	6.30%
COE Switch	6210	$39,994,535	1.78%	$39,994,535	1.78%
Operator Systems	6220	$1,058,679	0.05%	$1,058,679	0.05%
COE Transmission	6230	$27,172,757	1.21%	$27,172,757	1.21%
Information IOT	6310	$7,881,276	0.35%	$7,881,276	0.35%
Cable & Wire	6410	$324,543,885	14.48%	$324,543,885	14.48%
Plant Non-Specific Expenses					
Other PP&E	6510	$3,528,930	0.16%	$3,528,930	0.16%
Network Operations	6530	$156,684,471	6.99%	$156,684,471	6.99%
Depreciation/Amort	6560	$906,270,208	40.45%	$906,270,208	40.45%
Marketing	6610	$41,641,368	1.86%	$41,641,368	1.86%
Customer Opr Service	6620	$284,666,981	12.70%	$284,666,981	12.70%
Executive & Planning	6710	$16,115,445	0.72%	$16,115,445	0.72%
General & Administration	6720	$252,436,091	11.27%	$252,436,091	11.27%
Prov Uncollectibles	6790	$19,997,267	0.89%	$19,997,267	0.89%
Total Operating Expense		$2,240,676,089		$2,240,676,089	
Operating Taxes					
Federal and State	7200	$502,875,811		$502,875,811	
Gross Receipts Tax	7240	$148,649,827		$148,649,827	
Total Tax		$651,525,639		$651,525,639	
Return On Investment		$919,332,304		$919,332,304	

[1] **CBGs with Average Loop Investment per line over $10,000 are capped at $10,000**

Attachment 3

Number of Wire Centers: 528
Number of Switched Lines: 9,399,197

Wire Center Name	Switched Lines in CBG	Switched Lines Equipped
ABLNTXOR15T	12,262	15,327
ABLNTXORCG0	25,102	31,377
ABLNTXOWDS0	40,066	50,082
ABRYTXGIDS0	2,067	2,584
ADVLTXAVRS0	626	782
AGTNTXDARS0	3,192	3,990
AGTNTXTIDS0	13,434	16,792
ALBYTXPORS0	2,129	2,661
ALICTXALDS0	14,453	18,067
ALLNTXSADS0	15,707	19,633
ALPITXAPDS0	1,228	1,535
ALSNTXALRS0	1,036	1,295
ALVDTXTIRS0	9,221	11,526
ALVNTXALCG0	21,169	26,461
AMRLTXDIRS0	1,518	1,898
AMRLTXEVDS0	19,849	24,811
AMRLTXFLDS0	97,553	121,942
AMRLTXOSRS0	12,361	15,452
ANNATXWARS0	1,268	1,585
ANSNTXANRS0	2,317	2,897
ASTNTXASRS0	1,485	1,856
ATLNTXSWDS0	8,446	10,558
AUSTTXBCRS0	1,472	1,840
AUSTTXBERS0	767	959
AUSTTXCFRS0	2,826	3,533
AUSTTXCRRS0	4,803	6,003
AUSTTXCVDS0	10,194	12,742
AUSTTXEVDS0	22,351	27,939
AUSTTXFADS0	16,277	20,347
AUSTTXFIDS0	40,580	50,726
AUSTTXGRCG0	70,522	88,153
AUSTTXHIDS0	83,310	104,137
AUSTTXHOCG0	84,150	105,188
AUSTTXJOCG0	35,317	44,147
AUSTTXLEDS0	7,723	9,653
AUSTTXLTRS0	5,352	6,691
AUSTTXLWRS0	5,560	6,950
AUSTTXMADS0	1,716	2,145
AUSTTXMCDS0	33,678	42,097
AUSTTXMFRS0	2,813	3,516
AUSTTXPFDS0	3,027	3,783
AUSTTXRRDS0	33,012	41,264

Attachment 3

Number of Wire Centers: 528
Number of Switched Lines: 9,399,197

Wire Center Name	Switched Lines in CBG	Switched Lines Equipped
AUSTTXTECG0	30,780	38,475
AUSTTXTWRS1	33,938	42,423
AUSTTXWADS0	32,687	40,858
AUSUTXENRL0	13,545	16,931
BAVLTXBKRS0	6,863	8,579
BETNTXBEDS0	19,803	24,754
BEVLTXBVDS0	12,136	15,169
BGSPTXBSDS0	14,718	18,397
BGWLTXBWRS0	263	329
BLLVTXFRRS0	992	1,240
BLVLTXBLRS0	3,411	4,264
BNDRTXBDRS0	2,767	3,459
BNVDTXBNRS0	3,009	3,761
BOWITXTRRS0	5,492	6,864
BRCYTXBRDS0	6,771	8,464
BRGRTXBGDS0	11,715	14,644
BRHMTXBRDS0	11,628	14,535
BRKBTXEFRS0	8,209	10,262
BRRGTXHIDS0	7,782	9,728
BRTLTXBRRS0	880	1,100
BSTRTXBSDS0	9,808	12,260
BTVLTXBVRS0	404	505
BUMTTXTEDS0	26,119	32,649
BUMTTXTWDS0	12,685	15,856
BUMTTXUNDS0	28,680	35,850
BUMTTXVIDS0	20,689	25,862
BUNATXBURS0	3,802	4,753
BWVLTXLIDS0	61,549	76,936
BWVLTXOLRS0	4,475	5,594
BWVLTXTEDS0	8,287	10,359
BYCYTXBYCG0	5,870	7,337
BYCYTXBYDS0	5,848	7,310
BYSDTXBYRS0	2,683	3,354
CELNTXDURS0	1,371	1,714
CHINTXCHRS0	1,258	1,573
CHLCTXULRS0	2,276	2,844
CHLDTXWERS0	4,445	5,556
CHRNTXCHRS0	2,277	2,846
CHRSTXCHRS0	413	517
CISCTXHIRS0	4,313	5,392
CLBNTXMIDS0	18,664	23,330
CLCYTXCCRS0	5,362	6,703

Attachment 3

Number of Wire Centers: 528
Number of Switched Lines: 9,399,197

Wire Center Name	Switched Lines in CBG	Switched Lines Equipped
CLEVTXCLDS0	8,265	10,331
CLMBTXCLRS0	5,680	7,101
CLNTTXMARS0	5,287	6,608
CLUTTXCLDS0	14,853	18,566
CLUTTXLJDS0	11,951	14,939
CLVTTXCLRS0	1,365	1,706
CMRNTXCMRS0	3,602	4,502
CMTNTXCBRS0	761	952
CNDNTXCDRS0	4,036	5,045
CNTLTXMARS0	5,807	7,259
CNTRTXCNDS0	8,427	10,533
CNYNTXCYDS0	7,279	9,099
CRANTXCRRS0	4,581	5,726
CRCHTXBURS0	5,128	6,410
CRCHTXCADS0	16,931	21,164
CRCHTXFBDS0	17,827	22,284
CRCHTXTERS2	52,204	65,255
CRCHTXTUDS0	32,165	40,207
CRCHTXWYDS0	33,410	41,762
CRCHTXWYRS1	21,540	26,925
CRCYTXCCRS0	5,912	7,390
CRGNTXCRDS0	2,342	2,927
CRSCTXTRDS0	13,174	16,467
CRSPTXCSDS0	5,845	7,306
CRTHTXOXCG0	4,926	6,157
CRTHTXOXDS0	2,845	3,556
CSVLTXCTDS0	1,673	2,091
CTLLTXCORS0	2,552	3,190
CTRNTXCRRS0	498	623
CUERTXCRRL0	6,848	8,560
CYPRTXCYDS0	8,928	11,160
DDWDTXMARS0	4,227	5,284
DESNTXHODS0	21,151	26,439
DEVNTXDVDS0	4,098	5,123
DLLSTXADRS1	92,755	115,944
DLLSTXCHDS0	18,552	23,191
DLLSTXDARS2	44,540	55,675
DLLSTXDIRS2	76,125	95,157
DLLSTXDNDS0	20,408	25,510
DLLSTXDSDS0	21,821	27,276
DLLSTXDVRS2	43,477	54,347
DLLSTXEMDS0	85,290	106,613

Attachment 3

Number of Wire Centers: 528
Number of Switched Lines: 9,399,197

Wire Center Name	Switched Lines in CBG	Switched Lines Equipped
DLLSTXEVDS0	41,866	52,333
DLLSTXEXDS0	33,381	41,726
DLLSTXFBRS2	52,687	65,858
DLLSTXFEDS0	58,304	72,880
DLLSTXFLDS0	44,688	55,860
DLLSTXFRRS2	47,409	59,261
DLLSTXGPRS2	23,014	28,768
DLLSTXHARS2	36,558	45,698
DLLSTXHUDS0	5,966	7,457
DLLSTXLADS0	55,674	69,593
DLLSTXLNDS0	17,202	21,503
DLLSTXMCRS0	56,730	70,913
DLLSTXMERS1	18,876	23,595
DLLSTXMSDS0	41,912	52,390
DLLSTXNMRS2	73,400	91,750
DLLSTXNORS1	18,568	23,210
DLLSTXRERS2	27,607	34,509
DLLSTXRIDS2	18,941	23,676
DLLSTXRNDS0	86,096	107,620
DLLSTXRODS0	43,066	53,833
DLLSTXRYDS0	48,166	60,208
DLLSTXSEDS0	4,369	5,462
DLLSTXSUDS0	6,586	8,233
DLLSTXTA0CD	50,952	63,691
DLLSTXWHRS2	60,699	75,874
DONNTXDODS0	9,882	12,352
DWVLTXDWRS0	1,413	1,767
DYTNTXDYRS0	4,276	5,345
EDBGTXEBCG0	20,591	25,739
EDCHTXEDRS0	7,015	8,769
EDNATXEDRL0	2,321	2,901
EDWDTXTWRS0	1,876	2,345
EGLKTXEGDS0	3,148	3,935
EGPSTXEPDS0	20,016	25,020
ELCMTXELCG0	12,436	15,545
ELGNTXELRS0	6,124	7,655
ELPSTXEADS0	52,964	66,205
ELPSTXHADS0	61,752	77,190
ELPSTXHCRS0	7,584	9,480
ELPSTXMACG0	49,795	62,243
ELPSTXMSDS0	14,713	18,391
ELPSTXNECG0	25,274	31,592

Attachment 3

Number of Wire Centers: 528
Number of Switched Lines: 9,399,197

Wire Center Name	Switched Lines in CBG	Switched Lines Equipped
ELPSTXNODS0	30,429	38,037
ELPSTXSECG0	50,224	62,780
ELPSTXSHDS0	5,833	7,291
ELPSTXYSDS0	33,789	42,236
ENNSTXTRDS0	12,649	15,811
ESLDTXMARS0	6,206	7,758
EVDLTXEVRS0	2,394	2,992
FLDDTXFLRS0	7,584	9,480
FLHGTXFHRS0	1,479	1,849
FLTOTXFLRL0	609	761
FNNTTXFNRS0	1,414	1,768
FRERTXFRRS0	3,656	4,570
FRNYTXHIRS0	4,929	6,162
FRPTTXFRDS0	15,467	19,334
FRSCTXCODS0	5,068	6,335
FRSCTXESDS0	7,018	8,773
FRSCTXWERS0	9,296	11,620
FRVLTXSTRS0	2,626	3,283
FTDVTXFDRS0	1,485	1,857
FTSTTXFSRS0	9,400	11,750
FTWOTXALRS0	4,410	5,513
FTWOTXARCG0	15,917	19,897
FTWOTXARRS2	38,825	48,532
FTWOTXATRS2	58,031	72,539
FTWOTXAXRS2	63,086	78,858
FTWOTXBBDS0	12,676	15,846
FTWOTXBERS0	6,156	7,695
FTWOTXBNDS0	17,134	21,417
FTWOTXBRRS2	9,840	12,300
FTWOTXBURS2	45,463	56,829
FTWOTXBYDS0	8,953	11,192
FTWOTXCERS2	14,047	17,559
FTWOTXCFRS2	1,382	1,728
FTWOTXCIDS0	24,773	30,966
FTWOTXCPDS0	9,525	11,906
FTWOTXCRRS1	94,260	117,825
FTWOTXECRS2	28,175	35,219
FTWOTXEDCG0	43,605	54,506
FTWOTXEURS2	52,468	65,585
FTWOTXGLRS2	42,823	53,529
FTWOTXJERS2	30,017	37,521
FTWOTXKERS2	34,517	43,146